CLAIMS

1. A method for continuous production of plasterboard elements (44) in which two cardboard-type paper sheets (8) and (9) enclose, within shaping means (13), a plaster-based hydraulic binder (10) to create a composite strip (45) which then hardens on two hardening belts (14) and (15) carrying at their edges two tapered strips for producing longitudinal tapered edges (16) thereon, characterised in that it consists in:

- continuously preparing expandable, flexible, lightweight spacers or packing pieces (5) between 1 and 2 mm thick and 5 to 20 mm wide,
- cutting said packing pieces (5) to a length equal to a width of the plasterboard being produced less a value comprised between 0 and 10 cm,
- applying adhesive to an upper face of said packing pieces (5),
- continuously bonding said packing pieces (5) on-the-fly to the bottom of one of said cardboard-type paper sheets transversely thereto, centered, and perpendicular to a direction of advancement of said paper sheet (8) at accurate regular intervals "p",
- bonding said packing pieces to said paper sheet (8) in a region ahead of said shaping means (13),
- allowing said packing pieces (5) to be carried along by said paper sheet (8),
- adjusting a tension in said paper sheet (8) so as to regulate a width of an imprint (20) created therein to between 10 and 18 cm,
- leaving said packing pieces (5) fastened to said paper sheet (8) for the time needed to pass through said shaping means (13) and the time needed for the composite strip (45) composed of said paper sheets (8) and (9) and the hydraulic binder (10) to harden,
- cutting the composite strip (45) with knife means (2) in the middle of the imprints (20) left by said packing pieces (5).

2. The method according to claim 1, characterised in that said packing pieces (5) are stripped off on-the-fly after said composite strip (45) has hardened in a region extending from an end of a hardening belt (14) and said knife means (2), and preferably in a region (23) located between hardening belts immediately following one hardening belt (14), or in a region located close to and ahead of said knife means (2).

3. The method according to claim 1 or 2, characterised in that said packing pieces (5) are cut from a roll (26) of flexible strip (27) which is of paper, plastic material, organic material, metal or composite material.

4. The method according to claim 3, characterised in that a pricked packing piece (57) taken from a roll (26) of flexible strip (27) is pricked over its length along at least one line of pins (58) of variable length (59) allowing control of the overall thickness of a pricked packing piece (57) and consequently of the depth of the transverse tapering (17) being sought, the ends of a pricked packing piece (57) being themselves pricked to a depth different to said height (59) of said pins (58) at a mid-point of said pricked packing piece (57).

5. The method according to claim 1 or 2, characterised in that said packing piece (5) is reduced to a wire packing piece (52) or a double wire packing piece (55), said wire originating from a roll (26) of flexible wire either of paper, plastic material, synthetic material, organic material, composite material, or metal.

6. The method according to one of Claims 1-5, characterised in that a surface of said paper sheet (8) on the same side as said packing piece (5) and at both sides of said packing piece and in coincidence with a future transverse tapering (17) created by said packing piece (5) is roughened (12) either by stamping, pricking, knurling, brushing, said surface being additionally pre-marked along two notch lines (11) parallel to said packing piece (5) in a region corresponding to at future beginning of a said transverse taper (17) created by said packing piece (5).

7. Apparatus for carrying out the method according to any one of claims 1-6, constituted by a plasterboard (44) production line in which two sheets of cardboard-type paper (8) and (9) are unwound and come to enclose a plaster-based hydraulic binder (10) in shaping means (13) to constitute a composite strip (45) which hardens on two hardening belts (14) and (15) fitted with tapered strips for creating horizontal tapers (16) characterised in that it further comprises the following means:

- a bonder follower device located in a region ahead of said shaping means (13), provided for preparing said packing pieces (5) from a roll (26) of flexible strip (27), for coming into contact at high frequency with one of said paper sheets (8), for accurately bonding on-the-fly said packing pieces (5) to the bottom of said paper sheet (8), for roughening and pre-marking said paper sheet (8) at both sides of a packing piece (5) bonded to the bottom of the one said paper sheet (8),
- a guide sheet (42) located between said binder follower device and said shaping means (13) provided to protect said packing pieces (5) against being torn off, and for facilitating the passage and sliding of said packing pieces (5) between said bonder follower device and said shaping means (13),

- packing piece (5) removing means located after a hardening belt (14) and ahead of cutting means (2) provided for removing on-the-fly packing pieces (5) bonded to the bottom of said composite strip (45),

- cutting means located after a said hardening belt (15) and after said packing piece removing means provided for cutting said composite strip (45) in alignment with each of a number of imprints (20) created by said packing pieces (5).

8. The apparatus according to claim 7, characterised in that the bonding follower device is a linearly moving bonding follower device (6) constituted by a lower table (29) located underneath one of said paper sheets (8) and another counter-table (36) situated above the said one of said paper sheets (8), said lower table (29) receiving packing pieces (5) originating from a roll (26) of flexible strip (27) and carrying adhesive applied by adhesive-applying means (30) and cut to length by a knife (31) and being provided with a stamper (37) and jacking means and guides (34), said upper counter-table (36) being fitted with a compressible abutment plate (35), a counter-stamper (38) and a pulse sensor (32), the two said tables (29) and (36) being carried by a carriage (70) moved by motor and transmission means (33).

9. The apparatus according to claim 7, characterised in that said bonding follower device is a rotary bonding follower device (7) constituted by a lower roller (40) located below said one paper sheet (8) and an upper roller (41) located above said one paper sheet (8), said lower roller (40) receiving packing pieces (5) originating from a roll (66) of flexible strip (63) and carrying adhesive applied by adhesive applying means (60) and cut to length by a knife (61) and being equipped at its periphery by a stamper (67), said upper roller (41) located above said one paper sheet (8) in parallel with said first lower roller (40) being equipped at its periphery with a compressible abutment plate (65) and a counter-stamper (68) and being connected to jacking means and guides (64), the two said rollers (40) and (41) being provided with motor and transmission means (39) and with a pulse sensor (69).

10. The apparatus according to claim 7, characterised in that a guide sheet (42) thereof is constituted by a flexible, slippery and wear-resistant film, secured upstream of said table (48) by fixing means (47), said flexible film, of greater width than a length of said packing pieces (5) simultaneously embracing said table (48), beaters (18), projecting points (19), guides for said one of said paper sheets (8) in the region between a mixer (1) and shaping means (13), said flexible film presenting to said packing pieces (5) within said region a surface that is smooth, slippery and devoid of points where catching or snagging can occur.

11. The apparatus according to claim 7, characterised in that said means for removing packing pieces (5) consists of jacking means (25) controlled by an imprint detector (21) and associated electronics, said jacking means (25) being connected to a brush (22) itself fitted with a motor, said brush (22) being located below said composite strip (45) and positioned so as to be inclined with respect thereto.

12. The apparatus according to claim 7, characterised in that said cutting means consist of a shear (22), an imprint detector (21) at a known distance (d2) from said shear (2) and shear stroke calculating means (22).